

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-20 (canceled):

Claim 21 (currently amended): A method of determining the effectiveness of a nutritional food supplement to mitigate cellular damage caused by free radicals in living organisms, said method comprising the steps of ~~by~~ measuring the free radical scavenging ~~efficiency-capability of specific~~ antioxidants present in said nutritional food supplement[[.]] and characterizing the effectiveness of said nutritional food supplement in terms of said scavenging efficiency.

Claim 22 (currently amended): A process for determining the effectiveness of a nutritional food supplement to mitigate cellular damage caused by free radicals in living organisms by measuring the free radical scavenging ~~capability-efficiency of specific~~ antioxidants present in said nutritional food supplement, said process comprising the steps of:

introducing an organic dye reagent to a medium containing a free radical population to chemically tag the free radical population in said medium;

fluorometrically detecting and measuring the population of chemically tagged oxygen radicals in said medium;

introducing a nutritional formulation to said medium said nutritional formulation having ~~specific~~ antioxidant properties;

fluorometrically detecting and measuring the relative population of chemically tagged oxygen radicals in said medium;

~~and~~

calculating the free radical scavenging efficiency of said nutritional formulation using chemically tagged oxygen radical population measurements[[.]]; and

characterizing the effectiveness of said nutritional food supplement in terms of said scavenging efficiency.

Claim 23 (previously presented): The process of claim 22 wherein said organic dye reagent is 2-7 Dichlorofluorescein (H<sub>2</sub>DCFDA).

Claim 24 (previously presented): The process of claim 22 further comprising the step of incubating said medium with an oxygen catalyst promoter to increase oxidative activity before detecting and measuring the population of chemically tagged oxygen radicals in said medium.

Claim 25 (previously presented): The process of claim 24 wherein said organic dye reagent has a chemical composition that diffuses through a cell membrane.

Claim 26 (previously presented): The process of claim 24 wherein said oxygen catalyst promoter is selected from the group consisting of H<sub>2</sub>O<sub>2</sub>, peroxidase, transition metals, hydroxides and superoxides.

Claim 27 (previously presented): The process of claim 24 wherein said oxygen catalyst promoter is horseradish peroxidase.

Claim 28 (currently amended): An optical antioxidant sensing process for comparing the relative efficiency of a compound containing a food-based antioxidant to a compound containing an isolated form of the antioxidant, said compounds formulated to mitigate cellular damage caused by free radicals in living organisms, comprising the steps of:

- forming a control group comprising a medium containing a chemically tagged free radical population;
- incubating a first portion of said medium with a sample of a food-based source nutritional formulation having an antioxidant ingredient;
- incubating a second portion of said medium with a sample of a nutritional supplement having said ~~key~~ antioxidant ingredient in isolated form;
- fluorometrically measuring the free radical scavenging activity of said food-based source nutritional formulation in said first portion of said medium using an optical fiber sensor;
- fluorometrically measuring the free radical scavenging activity of said nutritional supplement in said second portion of said medium using an optical fiber sensor; and
- comparing the efficiency of said food-based ~~key~~ antioxidant and said isolated form of said ~~key~~ antioxidant by comparing the free radical scavenging activity measurements of said food-based source nutritional formulation having said ~~key~~ antioxidant ingredient and said nutritional supplement having said ~~key~~ antioxidant ingredient in isolated form.

Claim 29 (currently amended): The optical antioxidant sensing process of claim 28 wherein said ~~key~~ antioxidant ingredient in isolated form is an isolated form of vitamin E.

Claim 30 (withdrawn): A method of determining the effectiveness of a nutritional food supplement in a biological digestive system by measuring the free radical scavenging capability of specific antioxidants in said nutritional food supplement in selected segments of an in-vitro model of a biological digestive system, said selected segments of said in-vitro model comprising a stomach segment, a small intestine segment, an ascending colon segment, a transverse colon segment and a descending colon segment.

Claim 31 (withdrawn): A process for determining the effectiveness of a nutritional food supplement in a biological digestive system by measuring the free radical scavenging capability of specific antioxidants in said nutritional food supplement in selected segments of an in-vitro model of a biological digestive system, said selected segments of an in-vitro model comprising a stomach segment solution, a small intestine segment solution, an ascending colon segment solution, a transverse colon segment solution and a descending colon segment solution, said process comprising the steps of:

- introducing a functional food-based antioxidant sample to a first vessel containing said stomach segment solution;
- pumping the resultant solution into a second vessel containing said small intestine segment solution;
- pumping the resultant solution into a third vessel containing said ascending colon segment solution;
- pumping the resultant solution into a fourth vessel containing said transverse colon segment solution;
- pumping the resultant solution into a fifth vessel containing said descending colon segment solution; and
- assaying solutions from said vessels to determine the free radical scavenging capability of said nutritional food supplement antioxidants on free radicals in said segments of said in-vitro model of a biological digestive system.

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Claim 32 (withdrawn): The process of claim 31 wherein said small intestine segment solution includes a pancreatic fluid solution and a bile salt solution.

Claim 33 (withdrawn): The process of claim 31 wherein said stomach segment solution has an acidic pH and said small intestine segment solution has an alkaline pH.

Claim 34 (withdrawn): The process of claim 31 wherein said selected segments are maintained at a normal body temperature of 98.6 degrees.

Claim 35 (withdrawn): The process of claim 31 wherein said stomach segment solution is maintained at a pH of 2.

Claim 36 (withdrawn): The process of claim 31 wherein said descending colon segment solution is maintained at a pH of 6.8.